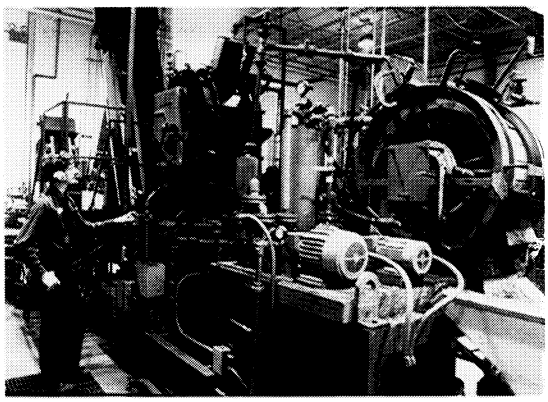
The search for alternative fuels sparked by the oil crises of the 1970s prompted extensive research and development investments, by both government agencies and private firms, toward new forms of coal. Progress in that area, coupled with increased emphasis on reducing energy costs, has brought coal more prominently into the U.S. fuel picture in recent years. Among a number of techniques aimed at developing practical, environmentally acceptable coal forms as fuel for large energy users are ways of producing "clean" coal or coal slurries—pulverized coal mixed with oil or water. Coal slurries offer several advantages, in particular a significantly lower cost than oil.



One company involved in developing improved coal-cleaning and slurry fuel processes is Advanced Fuels Technology (AFT), Cleveland, Ohio. AFT has developed an economical process for cleaning coal that removes up to 85 percent of the mineral sulphur and an average 75 percent of the ash. Coal thus cleaned provides more energy with less variability in burning characteristics; it also provides better boiler performance and reliability while reducing air-pollutant emissions. At left is the control room of AFT's pilot plant at Bridgeport, New Jersey where coal development work is conducted; in the lower photo is a ball mill that grinds the coal in preparation for cleaning and slurrying.

In the course of their coal-cleaning technology development, engineers at AFT-Bridgeport tested unclean slurry against clean slurry to determine the amount of sulphur and ash that would be allowable. To evaluate the products left after combustion—solid, liquid and gaseous materials—AFT employed a computer program developed by Lewis Research Center that provides specific capabilities for determining products of combustion. The program was supplied to AFT by NASA's Computer Software Management and Information Center (COSMIC)®, located at the University of Georgia. COSMIC maintains a large library of programs originally developed by NASA and other technology-generating agencies of the government and routinely supplies them to government and industry customers at a fraction of their original cost. These programs can be adapted to a broad spectrum of business and industrial applications, enabling users to save time and money by taking advantage of COSMIC's service. AFT reported a saving of four man-months that would have been required to develop similar software had the Lewis program not been available. ▲

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